

### **REMARKS**

The instant Office Action dated November 16, 2007 listed the following rejections: claims 1-2, 5, 7, and 9 stand rejected under 35 U.S.C. § 103(a) over Nishikido *et al.* (JP 11177328) in view of Houlihan (U.S. Patent No. 5,467,324); claim 3 stands rejected under 35 U.S.C. § 103(a) over Nishikido and Houlihan and in further view of Hirai *et al.* (U.S. Patent No. 6,429,829); claims 6 and 8 stand rejected under 35 U.S.C. § 103(a) over Nishikido and Houlihan in further view of McLean (GB 2036447); claims 10-11 stand rejected under 35 U.S.C. § 102(a) over Nishikido; claims 12 stands rejected under 35 U.S.C. § 103(a) over Nishikido in view of Hirai; claims 14 and 17-18 stand rejected under 35 U.S.C. § 103(a) over Nishikido in view of Houlihan; and claims 15-16 stand rejected under 35 U.S.C. § 103(a) over Nishikido and Houlihan in further view of McLean.

Applicant respectfully traverses all of the § 102(a) and § 103(a) rejections presented in the instant Office Action (each of which is based on the Nishikido reference) because the claimed invention was reduced to practice prior to the reference date of Nishikido (*i.e.*, the publication date of July 2, 1999), as evidenced by the 37 C.F.R. § 1.131 Declaration submitted herewith, showing correspondence between the claimed invention and a document entitled "Orthogonal Watch Helix" dated before July 2, 1999. This § 1.131 Declaration has been executed by Kevin Boyle, the inventor of the subject matter of the claimed invention. Applicant notes that "(w)hen alleging that conception or a reduction to practice occurred prior to the effective date of the reference, the dates in the oath or declaration may be the actual dates or, if the applicant or patent owner does not desire to disclose his or her actual dates, he or she may merely allege that the acts referred to occurred prior to a specified date." *See*, M.P.E.P. § 715.07(II). Thus, since the attached § 1.131 Declaration alleges reduction to practice, Applicant has chosen to redact the dates in Exhibit A. Therefore, Applicant submits that the Nishikido reference is not prior art under § 102(a). Accordingly, Applicant requests that all of the § 102(a) and § 103(a) rejections presented in the instant Office Action be withdrawn.

Applicant notes that minor amendments have been made to claims 1-3, 5-12, and 14-18 to improve readability. For example, "physically-shortened" has been replaced with "physically-short". Applicant submits that these amendments are not being made to

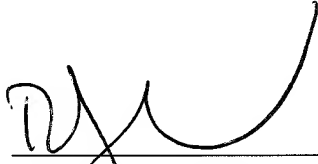
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overcome any of the rejections presented in the instant Office Action, which fail for at least the reasons discussed above.

In view of the remarks above, Applicant believes that each of the rejections has been overcome and the application is in condition for allowance. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is asked to contact the agent overseeing the application file, David Cordeiro, of NXP Corporation at (408) 474-9064 (or the undersigned).

*Please direct all correspondence to:*

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Attachments:  
Declaration (§1.131) with Exhibit A.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Boyle, K.	Examiner:	Rampuria, S.
Serial No.:	09/616,635	Group Art Unit:	2617
Filed:	July 26, 2000	Docket No.:	B034367US
Title:	BODY-WORN PERSONAL COMMUNICATIONS APPARATUS		

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**INVENTOR DECLARATION (UNDER 37 C.F.R. §1.131)**

I hereby state and declare that I, Kevin Boyle, am an inventor of the subject matter described and claimed and for which a U.S. Patent is sought on the invention entitled: BODY-WORN PERSONAL COMMUNICATIONS APPARATUS, having U.S. Patent Application Serial Number 09/616,635 (Docket No. NXPS.370), filed on July 26, 2000, which claims priority to Great Britain Application Number 9917678.06, filed on July 29, 1999.

I, Kevin Boyle, further state that:

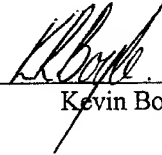
1. The invention claimed in the above-referenced application was conceived and reduced to practice before July 2, 1999. Attached to this Declaration is a copy of a document entitled "Orthogonal Watch Helix" (labeled for this submission as Exhibit A), which is dated (the actual date having been redacted) prior to July 2, 1999, and which demonstrates the reduction to practice of the claimed invention.

2. Regarding the independent claims (*i.e.*, claims 1 and 10), Figure 1 on page 1 of Exhibit A shows a wrist watch with an orthogonal helix antenna. *See, also*, the Summary section on page 1 of Exhibit A. The helix antenna is mounted on the casing of the watch and the antenna is aligned with the height of the watch casing. The watch can also include a microphone that is integrated with the antenna. *See, e.g.*, the Summary section on page 1 of Exhibit A.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dated: March 14<sup>TH</sup>, 2008

Signature: \_\_\_\_\_

A handwritten signature in black ink, appearing to read "K. Boyle", written over a horizontal line.

Kevin Boyle

## 1.0 Introduction

There are a large number of patents on wristwatch antennas [1] that concentrate on loops (internal to the watch and in the strap), conformal dipoles/slots and patches. The author is not aware of a patent filing on an orthogonally oriented helix.

Since the magnetic field parallel to the body and the electric field normal to the body are enhanced [2], it is conventional to implement an antenna that takes advantage of this. For pagers, which have been the main application of wristwatch antenna patents [1], the conventional approach has been to install a loop antenna that is arranged to be orthogonal to the body, thereby receiving the parallel component of the magnetic field. Another approach, not valid for pagers due to the low frequency and vertical polarisation of the pager transmission, would be to receive the normal component of the electric field.

## 2.0 Summary

Reception of the normal component of the electric field is appropriate in a higher frequency device (such as for Bluetooth, HomeRF, DECT etc) because an electric antenna such as a normal mode helix could be practically small enough. In a wristwatch, such an antenna would also be vertically polarised while the user is looking at the watch. When not being looked at, the antenna would be predominantly horizontally polarised (at the user's side). If the radio network were to be predominantly vertically polarised (as is often assumed), then there would be a significant polarisation mismatch. However, a multipath environment typically causes cross-polarisation levels of approximately  $-6\text{dB}$  [3] and the antenna would be normal to the bulk of the body. Thus, multipath and the additional normal electric field enhancement from the bulk of the body would ensure reasonable performance in both conditions. The design of the watch casing (inherently part of the radiating system) could also provide some averaging of performance in different orientations.

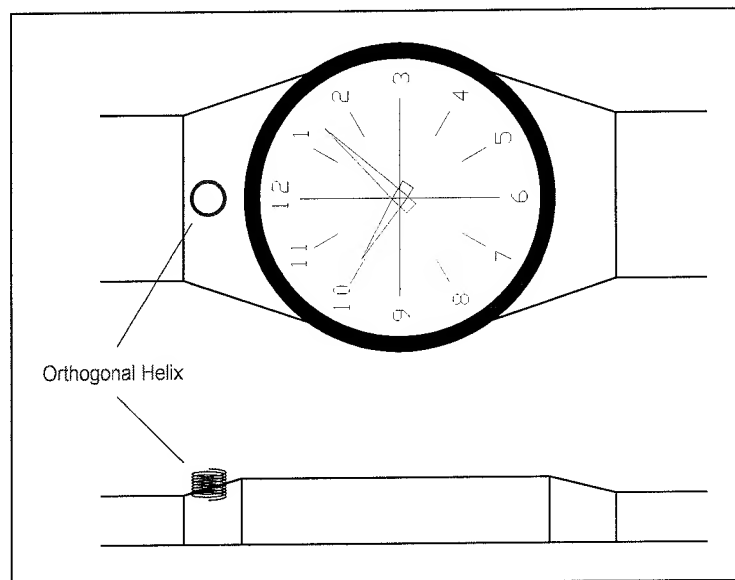


Figure 1 Orientation of an Orthogonal Watch Helix


The disadvantage of this approach is that the antenna would protrude slightly from the watch. However, it could be integrated with a microphone [4] to save space and appear more functional.

## 3.0 References

- [1] K R Boyle, "Patents Relating To Watch Antennas", PRL Technical Note No. 3814, 1/1999.

# Exhibit A

Antenna Project  
KRB/572/027

  
Issue 01

- [2] K Boyle, R Hill, "Survey of Antennas for Radio Pagers at 930MHz", Philips Research Laboratories, Redhill Technical Note No. 3737, 2/1999
- [3] Kazimierz Siwiak, "Radiowave Propagation And Antennas For Personal Communications", Second Edition, Artech House, 1998.
- [4] K R Boyle, "Integrated Microphone/Speaker and Antenna Patent", Patent Proposal KRB/572/022, Issue 01, 14/9/98